DOCUMENT RESUME

ED 105 438 CS 001 768

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TITLE Evaluation Report for the Improvement of Reading, 1972-1973; Final Report on the Educational Achievement Act of Colorado 22-22, C.R.S. 1973.
INSTITUTION Colorado State Dept. of Education, Denver.
PUB DATE 75
NOTE 72p.; Page 67 has marginal reproducibility due to small type

EDRS PRICE MF-$0.76 HC-$3.32 PLUS POSTAGE
DESCRIPTORS Reading; Reading Development; *Reading Improvement; *Reading Instruction; Reading Materials; *Reading Programs; *Reading Research; Reading Skills
IDENTIFIERS Colorado

ABSTRACT

This Colorado Department of Education final report describes the reading program efforts aimed at increasing the reading skills of students who were behind in reading achievement. "Summary and Recommendations" summarizes the results for the 1972-73 program. "Introduction" discusses the purpose and the plan, appropriation of funds, and process results. "Program Descriptions," describes the following programs: Decoding for Reading; Distar; Systems; Listen, Look, and Learn; Learning 100; The Guaranteed Grade Gain Program; The Wisconsin Reading Design; Sullivan Programmed Reading; The Reading Laboratory; Peabody Language Development; Supplement Basal Reader; Inservice Education; Equal Use of Decoding for Reading and Distar; Equal Use of Decoding for Reading and Programmed Reading; and an eclectic program. "Results" discusses data collected, students and programs, costs, achievement, and attitudes. "Conclusions" presents conclusions based on the findings from this study. (WR)

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ED105438

EVALUATION REPORT FOR THE IMPROVEMENT OF READING 1972-1973

FINAL REPORT ON THE EDUCATIONAL ACHIEVEMENT ACT OF COLORADO 22-22, C.R.S. 1973

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CS 001 768

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PS-5
74 p+c, #674
February, 1975

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FOREWORD

The Educational Achievement Act was enacted originally in 1969 because of a concern expressed by citizens and legislators that many children were not learning to read adequately. The Act has as its major focus children who are substantially behind other children in their reading achievement test scores.

Because of the funds available, the original pilot character of the Act and the desire to achieve maximum impact with the program, the Act has never been extended to all Colorado school districts. It has been a program limited to from 21 to 25 projects each year with from 63 to 72 districts involved, many of which were members of Boards of Cooperative Services. There was no funding provided in 1973-74 or 1974-75.

A variety of agencies conducted the evaluation of the Act during its first three years (fiscal years 1970, 1971 and 1972). These evaluators carried out their functions under certain handicaps which limited their capacity to produce information in which a degree of confidence could be placed. There was no uniform pre-test, post-test arrangements, no uniform measuring instruments and no examination of the attitudes of students. The evaluators were not involved prior to the operation of the program in the establishment of a general evaluation design. Cost factors were distorted because full program cost information was not available.

For FY 1973, it was decided that the evaluation should remain within the Department of Education as much as possible, although outside personnel were utilized to some extent, as they were needed. A pre-post design was established, a procedure for analysis, a full-cost accounting procedure was designed and other improvements made to make the evaluation more meaningful.

With the improvements in the evaluation design, I am pleased to transmit this report of the Educational Achievement Act to the General Assembly and the people of Colorado.

Calvin M. Frazier
Commissioner of Education

Chapter 1

SUMMARY AND RECOMMENDATIONS

The Educational Achievement Act, 22-22, CRS 73, was enacted originally in 1969 because of a concern expressed by citizens and legislators that many children were not learning to read adequately. The Act had as its major focus children who were substantially behind other children in their reading achievement test scores. Because of the funds available, the original pilot character of the Act, and the desire to achieve concentrated impact with the programs, the Act was never extended to all Colorado school districts. It was a program limited to from 21 to 25 projects each year with from 63 to 72 districts involved, many of which were members of Boards of Cooperative Services. The number of students participating ranged from 6700 to 13,000 over the years of the Act. During the four years of funding $5.5 million have been distributed. The 1972-73 programs were carefully studied, and results are summarized in this chapter.

The additional reading program effort produced by the funds in the Colorado Educational Achievement Act did lead to increased gains by students who were behind in reading achievement. Students who had been averaging six to eight months reading gain per school year before the program increased their gain by an average of more than 50 percent. That is, over the seven months of the testing period the students in these projects averaged seven to twelve months gain, depending on grade level and test. Thus, while only about one-third of the students had been averaging seven months gain per year before the program, well over half of the students gained seven months during the study. Most programs showed moderate reading achievement gains of seven to nine months during the seven months

testing period. A few programs showed high gain and a few gained less than grade equivalent or gained less than the students had averaged before the program started. Attitude changes, for the most part, were neutral, with as many unfavorable as favorable changes occurring.

An analysis was made of students by ethnic category. Each student was categorized as Black, Spanish surnamed or Chicano, American Indian, Oriental, or Other. Because there were so few the Indian and Oriental categories were combined with Other which was primarily Caucasion.

Ethnic category comparisons found "Other", Spanish surnamed, and Blacks showing reading achievement gain in that order after adjusting for age, sex and pre-test scores. In attitudes the "Other" student category scored the lowest in attitudes with Blacks and Chicanos the most favorable, but in attitude change there were no consistent patterns by ethnic category.

For the purpose of the study a program was identified by those reading materials most frequently used within a program. It cannot be said that materials alone can be credited for the success or failure of a program. Among the more successful programs in terms of positive achievement growth and positive attitude change the following characteristics were found to be most common:

a prescription based on diagnosis of pupils
a developmental sequence of skills
a wide variety of instructional reading materials available
pupil problems identified early
staff involvement in planning
paid teacher aides
aide training
teacher training

The funds appropriated for use in FY 73 were distributed among 21 projects. For every reading achievement dollar expended by the State, local school districts contributed on the average an additional $1.42 to the same purpose. Of the total funds expended, instructional salaries

constituted 59 percent and local district administration constituted 2 percent. The average cost per pupil (state, local and federal) across all projects was $180.53.

Interpretation of results must be tempered by various sources of internal invalidity and error. The programs were selected by the schools, and thus differences in teachers, school characteristics and other student variables were not controlled. A uniform cost allocation was not followed by the schools and thus cost differences in local contributions were exaggerated. Local salary schedules, which can differ by 25 percent, make cross-district cost comparisons difficult. Since the program materials were all tested successfully by the original developers, variations in achievement success reported here may be seen partly as the effect of differences in implementation in school settings.

The following conclusions, based on the findings from this study, are offered to persons planning program development in reading achievement:

1. Additional effort, made possible by the incentive of additional funds, can produce significant reading achievement gains.

2. Inservice education for all teaching staff which is relevant to reading remediation in the classroom can produce results.

3. When programs are established, the data seems to show that those which allow the teacher wide latitude in the choice of materials and procedures produce good results.

4. Organized commercially prepared programs may or may not produce results depending upon a wide variety of other variables in the learning environment.

Chapter 2

INTRODUCTION

PURPOSE AND PLAN

Colorado students score above national reading norms in the lower grades and below norms in the upper grades.[1] A comparison of 17-year-olds on a pool of items from the National Assessment of Educational Progress showed Colorado 17-year-olds scoring as well or better than the national sample.[2] The median reading level for children in Colorado Title I programs is about the 30th percentile.[3] Overall, it is estimated that 10 to 20 percent of Colorado's 540,000 students have reading difficulties.

The Colorado Educational Achievement Act was enacted in 1969 because of legislative and public concern over reading achievement. This is the fourth annual report which has been completed under the provisions of the Educational Achievement Act of Colorado (E.A.A.C.). The purpose of this Act is established in Section 2 of 22-22, CRS 1973:

> 22-22 CRS 73 Purpose--(1) It is the purpose of this Article to assist certain local school districts to carry out programs for educational achievement of those students in grades one through six who are below their assigned grade in reading at least: three-tenths of a grade level in first grade; six-tenths of a grade level in second grade; nine-tenths of a grade level in third grade; one and two-tenths of a grade level in fourth grade; one and five-tenths of a grade level in fifth grade; and one and eight-tenths of a grade level in sixth grade; and in grades seven through twelve, two or more grade levels below their assigned grade in reading, as determined by standardized achievement tests as approved by the State Department of Education.

To accomplish the above purpose, 22-22 CRS 73 states that appropriate funds may be used to accomplish improved utilization of educational personnel, training and development programs, new curricula and equipment.

The Department of Education attempted to keep itself free from the imposition of personal bias in regard to the kinds of solutions school districts would use in the development of FY 73 programs. Application forms were distributed to districts which simply asked them to identify their needs, goals and objectives, activities they would employ to improve the identified pupils and their means of evaluation.

These proposals were received on a competitive basis on July 17, 1972. They were immediately transmitted to a five person panel of reading specialists which ranked the proposals in priority order. To have funded all of the proposals received would have required an appropriation of $2,066,707. The General Assembly had appropriated $1,000,000 for distribution to districts. Using the panel's ranking, the Colorado Board of Education approved the first twenty-one projects of those listed in rank order. These projects would require the $1,000,000 appropriated by the General Assembly.

After the projects were selected, the Labroatory of Educational Research at the University of Colorado was employed to assist in the establishment of an evaluation design which would produce the information needed to determine the results of these projects. The Laboratory prepared an attitude survey which was to be administered at the beginning of the project and at the end. Dr. Kenneth Hopkins met with all project directors where the Gates-MacGinitie Reading Test was selected cooperatively by them as the common instrument for all projects. The Laboratory then designed an achievement test data form to collect achievement information. All pupils were subsequently tested in the fall of 1972.

All projects were visited by the Department of Education consultant during the year of operation to assure program fidelity and to collect further details about the program. The programs were examined to determine whether or not the activities described in the original proposal were actually being conducted in that manner.

At the end of the school year, the pupils were tested again so that a measure of this achievement could be taken in comparison with the fall measure.

COLORADO DEPARTMENT OF EDUCATION ADMINISTRATION OF EAAC

Costs

During the 1973 fiscal year, the Compensatory Education Unit of the Colorado Department of Education employed one professional staff member for .75 of his time and one clerical staff member for .50 of her time for the administration of the EAAC program. From the administrative appropriation of $25,000, $18,200 was spent for professional and clerical salaries and fringe benefits; $5,695 was spent for contracted evaluation services; $320 for travel, and $785 for printing, postage, equipment, repairs, etc.

Activities

The following activities were conducted by the Department staff as a function of the appropriation:

1. Assistance to State Board of Education in the development of policy related to the administration of the Act.
2. Preparation and mailing of instructions to school districts regarding application for funds.
3. Completed contract with an instructed panel of reading specialists for proposal selection process.

4. Arranged contract with the University of Colorado, Laboratory of Educational Research to assist with evaluation design.

5. Negotiated budgets of highest ranking proposals downward to effect most pupils for least cost.

6. Prepared materials for State Board approval of projects.

7. Conducted meeting of all approved project directors to select a common test instrument. Agreed on testing dates and conditions of testing.

8. Prepared financial report form which would account for total expenditures both from EAAC and other sources.

9. Conducted meetings with EAAC Advisory Committee regarding current operation and new legislation.

10. Met with Interim Committee on Public Education and prepared materials and reports on past and current operation of EAAC.

11. Prepared draft of new legislation related to criteria established by Interim Committee.

12. Met with panels of reading specialists from school districts regarding new legislation and obtained their recommendations.

13. Met with Senate Education Committee to review and revise draft bill.

14. Attended hearings of both House and Senate to be available for questioning.

15. Visited all approved projects to determine that projects were operating within the conditions of the law and their agreed objectives. Collected program description information during visit and assisted directors with problems.

16. Wrote and published article on EAAC encouraging other districts to examine project districts for their own benefit.

17. Prepared and mailed instructions for final reporting to all districts.

18. Prepared and delivered talk to Vocational Education Advisory Committee relative to the relationship of reading and Vocational Education.

19. Arranged contract for data analysis

20. Collected evaluation data and prepared it for analysis.

21. Wrote evaluation report.

Reaction

The general results of the preceding activities are reflected in the balance of this report. As these projects have impacted upon local districts and subsequently upon students in those districts, the result is ultimately the change in students' reading ability which had its origins in the legislature and the Department of Education.

However, other results than student improvement occurred. These may be referred to as process results rather than product results as in the case of student improvement. They reflect both the adequacies and inadequacies of the procedures employed to implement the program.

1. The numbers of project applicants were few (37 out of 181 districts). This may be attributable to the lateness of the appropriation, the short time for preparation of proposals and the fact that many school personnel were on vacation at the time proposals were called for rather than lack of interest or desire. Instructions to districts were mailed June 23, 1972 and the deadline for application was July 17, 1972.

2. Several complaints were received relative to the selection of projects for approval. The implication of such complaints was that if one district in the state is entitled to money from the state for this problem then all districts should be entitled to it since all districts experience the problem of low-reading achievement in varying degrees. The State Board subsequently took the position that in future legislation such grants should be non-competitive.

3. Good working relationships between the Department of Education and Committees of the General Assembly where communication was taking place. Face to face discussion in small meetings made it possible for staff and legislators to understand each other's concerns about new legislation. Unfortunately because of the press of other business in the legislature, time did not permit the same kind of discussion with the House Committee that took place in the Senate. As a result, the bill which passed the Senate did not reach the floor of the House.

4. The process established for proposal development, project operation and reporting represents a practical model for Accountability and PPBES in a rather primative state. It utilizes the rather old concept of crosswalking developed by Peat, Marwich and Mitchell. With this method, current accounting methods are "crosswalked" into a program budget format. While this method does not yield information in as detailed a form as a system designed for program budgeting, it does provide decision making information of better quality than current systems.

5. School district reading specialists expressed their gratitude that the Department of Education involved them in the consideration of new legislation.

THE EVALUATION DESIGN

Much interest has been expressed by legislators and others in the types of projects undertaken under the EAAC program and their costs in relation to the benefits derived by the pupils in these projects. The problem of this evaluation was to determine the degree to which pupils achieved in the various projects and the costs required to support them. Three general types of information were needed for each project--cost information, program description, and information on student learning.

To accomplish the above, a beginning point was needed and an ending point such that the various projects could be compared each with the others on a consistent basis.

The differences between what projects planned to do and what actually occurred provided some interesting insights into the causes of success or lack of it in any given project or among them. In addition, such implementation data allows one to guard against appraising what has been called "non-events" (4). In order to contrast effects of different programs the programs must, in fact, be different in actual implementation and not just in intended differences.

Chapter 3

PROGRAM DESCRIPTIONS

An important feature of evaluating the Educational Achievement Act lies in an examination of the degree of effectiveness of the various program packages which were utilized.

No attempt was made to utilize a control group or groups within the evaluation process. It was simply accepted at the outset that the pupils in the program had been selected because the regular school program had not been producing student learning at an acceptable rate. The criteria for selection of these pupils was established in the statute 22-22 C.R.S. 73. The question encountered with these programs was whether or not they could produce a more acceptable rate of learning for the students than had occurred with them in the past. It was also important that the programs utilized would improve or at least not negatively affect student attitude toward learning. To teach a child reading skills at the expense of also teaching him to hate reading and school was not considered a desirable outcome.

The programs themselves defied exact definition with the resources available to this evaluation. Within each program, although it was generally like another program, variations occured in practice which altered the activities to make programs which were generally alike--different by virtue of other characteristics. For example, two programs could be using DISTAR materials but one would be using teacher aides and the other one would not. These kinds of variations were so numerous that not all of them could be accounted for.

Since financial resources were too limited to send teams of personnel into the field to accurately describe materials and teaching techniques being utilized in each program, a simple program definition technique was employed. The Department of Education EAAC program director first made an analysis of the proposals of all of the funded projects to determine what program characteristics existed within each project. These were reduced to a list of 62 variables which supposedly existed in the programs (Appendix A). The 62 program characteristics for each program were categorized into seven major areas: curriculum, staff, staff development, evaluation, materials, equipment, commercial packages, and planning - organizational. * On his program monitoring rounds the CDE program director showed this list to each local project director. The local project director was then asked two questions: (1) which characteristics on the list actually exist in your program?, and (2) how would you rank these program characteristics that you have selected as being most important in terms of the program you are conducting? Thus, program characteristics were selected and ranked in order of importance.

An examination of these characteristics revealed that the most constant factor which could be used to identify them was the major set of materials being used by teachers in the program. Each of these materials sets had

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*For comparison, it can be noted that the Educational Testing Service is conducting an extensive study of compensatory reading programs in U.S. elementary schools (5). In the ETS study some 85 program variables were factor analyzed and reduced to five major factors described as follows:

1. Emphasis on basic reading activities.
   A program ranking high on this index spends more of its class time in matching letters or words, learning letter forms, developing visual discrimination and sight vocabulary, increasing attention span, and improving motor abilities related to reading than do lower ranking programs.

(Continued)

other variables associated with them. Fifteen programs were identified on this basis for further analysis of program effects. The program descriptions which follow first identify the major materials being used and then the other important variables which were included and associated with the program.

(Footnote continued from preceding page)

2. Emphasis on use of audio-visual materials.
   A program ranking high on this index is more inclined than lower ranking programs to use a variety of audio-visual aids and hardware such as motion pictures, filmstrips, slides and transparencies, tape recordings and records, video or TV tapes, and newspapers, magazines, and other periodicals.
3. Emphasis on supplementary reading activities.
   A program ranking high on this index is more likely than a lower ranking program to spend time in a variety of activities best characterized as supplementary to basic reading instruction such as creative writing, independent reading, library activities, reading for enjoyment and using many different experiences as settings for reading instruction.
4. Emphasis on instructional flexibility.
   Teachers in programs ranking high on this index tended to show a high degree of instructional flexibility, use approaches not readily categorized in the standard sense, have special training in the teaching of reading and not use basal readers.
5. Emphasis on instruction during time released from other school subjects.
   Programs ranking high on this index carry out compensatory reading instruction in time released from classwork other than regular reading instruction since compensatory reading instruction is perceived as a top priority activity.

Using these five indexes ETS was able to distinguish 11 distinctly different approaches to compensatory reading.

PROGRAM I: DECODING FOR READING, MacMillan Company, publisher

Decoding for reading is called by its producers a "multisensory" program. Its authors were especially interested in meeting the needs of upper grade children who had not learned to relate spoken words to printed words. To help pupils make this relationship, the program utilizes the pupil's familiarity with spoken language to see how the letters of the alphabet operate "in the code" called written English. A student in the program listens to a record which tells him a story recorded word for word. While listening, the student reads silently in his text the same words to which he is listening. He then completes a companion phonics lesson.

Variable Features in Projects

Project 1

Emphasis given to:

1. teaching method
2. developmental sequence of skills
3. reading coordinator employed
4. volunteer aides
5. special training program for teacher
6. high interest books and reading games used to supplement basic program

PROGRAM 2: DISTAR, Science Research Associates, publisher

The Distar System is based on the following principles according to its authors:

-planning and a statement of behavioral objectives
-training of teachers in the methods of the program
-adequate supervisory procedures
-materials directly relevant to the behavioral objectives
-providing motivation so that the children want to succeed
-reinforcing successful behavior
-maintaining regular, consistent and frequent instruction
-attending to the learning problems of individual students
-active parental involvement

A basic premise is that every student can be taught. Teacher presentations are structured so that students and teachers stay on task. Rewards and incentives are provided.

Variable Features in Projects

Project 1

Emphasis given to:

1. prescription based on pupil diagnosis
2. pupils self pacing own learning rate
3. word recognition skills

4. students assisting other students
5. teacher training
6. individual pupil diagnosis
7. wide variety of reading materials available
8. small group instruction

Project 15

Emphasis given to:

1. prescription based on pupil diagnosis
2. language development
3. reinforcement of reading skills in other content areas
4. paid teacher aides
5. university interns used
6. teacher and aide training program
7. early identification of reading difficulties
8. small group instruction

Project 21

Emphasis given to:

1. prescription based on pupil diagnosis
2. pupils self pacing at own learning rate
3. word recognition skills
4. reading coordinator
5. teacher training
6. individual pupil diagnosis
7. wide variety of reading materials available
8. small group instruction

PROGRAM 3: SYSTEMS, Scott Foresman Company, publisher

Scott Foresman Reading Systems emphasizes a sequential development of skills through interesting material. Children were involved in the selection of the content. Two comprehension strategies are utilized; picture cues and oral context cues. Regular phonics instruction is included through work pages and visual devices. Informal assessment procedures are used by teachers to keep an account of student needs. Personalized reading is stressed. Home-school activities are provided.

Variable Features in Projects

Project 1

Emphasis given to:

1. prescription based on pupil diagnosis
2. use of instructional units
3. pupils self-pacing of own learning rate
4. reading coordinator employed
5. teacher training program

6. pre and post testing
7. video taped lessons
8. staff involvement in activity planning

PROGRAM 4: LISTEN, LOOK AND LEARN, McGraw-Hill, Inc., Publishers

Listen, Look and Learn was the basic instructional package used in this program. It is a multi-media communication skills system emphasizing basic reading and related language arts skills. It is non-graded and organized into instructional units identified as cycles. Each cycle is made up of four parts: (1) Perceptual Accuracy and Visual Efficiency, (2) Building Experiences, (3) Skill Building, (4) Individualized Reading and Related Language Arts. Two pieces of equipment are used in the program: the Aud-X and the Controlled Reader. The Aud-X is a sight-sound synchronized instrument used to develop reading skills through auto-instructional lessons. The Controlled Reader is an instrument which makes use of a moving slot to project printed material on a screen in a left to right manner at a predetermined rate of speed.

Project 1

Emphasis given to:

1. prescription based on pupil diagnosis
2. pupils self pacing of own learning rate
3. developmental sequence of skills
4. paid teacher aides
5. teacher training program
6. pre-and post-testing
7. wide variety of instructional reading materials
8. staff involvement in activity planning

PROGRAM 5: LEARNING 100, McGraw-Hill Company, publishers

Learning 100 is a system designed to help the potential or actual school dropout, illiterate adults, or adults in poverty. It is a multi-media program containing cycles of instruction very much like program 4 except that it is directed to an older population of students. The content is oriented toward adults. Six cycles are provided and each cycle contains four parts: (1) Perceptual Accuracy and Visual Efficiency, (2) Building Experiences, (3) Skill Building, (4) Individualized Reading. Equipment utilized in the program consists of the Aud-X, the Controlled Reader and the Tach X which provides individual perceptual training.

Variable Features in Projects

Project 1

Emphasis given to:

1. use of instructional units

2. pupils self pacing of own learning rate
3. developmental sequence of skills
4. paid teacher aides
5. teacher training program
6. early identification of reading difficulties
7. wide variety of instructional reading materials
8. written goals and objectives

PROGRAM 6: THE GUARANTEED GRADE GAIN PROGRAM, Hoffman Information System, publisher

The Guaranteed Grade Gain Program is a reading laboratory program. The core of the program is an audio-visual system using filmstrips and records for kindergarten through sixth grade levels. The program is individualized for each child through the use of a teaching machine which simultaneously presents a story on record, a story in a booklet to be followed with pictures on a screen. The program is supplemental to the regular program of reading instruction and is aimed at students having reading difficulties. Each lesson has an evaluation instrument associated with it.

Variable Features in Projects

Project 3

Emphasis given to:

1. prescription based on pupil diagnosis
2. pupils self-pacing of own learning rate
3. increased use of library
4. employment of reading specialist
5. dissemination of information about project
6. individual pupil diagnosis
7. video taped lessons
8. use of a reading laboratory

Project 11

Emphasis given to:

1. developmental sequence of skills
2. prescription based on pupil diagnosis
3. token reinforcement for pupils
4. paid aides
5. aide training
6. early identification of pupils
7. high interest reading materials
8. small group instruction

Project 13

Emphasis given to:

1. comprehension and recall
2. vocabulary building
3. word recognition
4. reading coordinator
5. aide training
6. pre-and post-testing
7. wide variety of materials
8. written goals and objectives

Project 14

Emphasis given to:

1. prescription based on pupil diagnosis
2. pupils self pacing of own learning rate
3. emphasis on language development
4. paid teacher aides
5. outside resource personnel used
6. individual pupil diagnosis
7. central bank of materials
8. mobile van used

PROGRAM 7: THE WISCONSIN READING DESIGN, Interpretive Scoring Systems, publisher

The Wisconsin Reading Design is more of a reading management system than it is a package of materials. It is an objective-based approach organized into six skill areas: word attack, study skills, comprehension, self-directed reading, interpretive reading, and creative reading. The program provides lists of objectives, criterion-referenced tests, management of pupil learning with a simple notched card system, and a procedure for developing materials locally. It also provides a set of materials for the inservice education of instructional personnel. One of the basic features of this program is that it is possible to tailor the instructional materials to local student needs.

Variable Features in Projects

Project 8

Emphasis given to:

1. developmental sequence of skills
2. multiple teaching methods
3. prescription based on pupil diagnosis
4. paid teacher aides
5. aide or tutor training program
6. pre-and post-testing
7. wide variety of instructional reading materials
8. needs assessment

PROGRAM 8: SULLIVAN PROGRAMMED READING, McGraw-Hill Co., publishers

Sullivan Programmed Reading is a programmed text approach to reading instruction. In a programmed text the student reads material to be learned and immediately after reading completes a practice exercise designed to determine accuracy of learning and reinforce it. Material is presented in a logical sequence in very small increments of learning. The student can proceed at his own rate of speed and even though he may be absent from school, he will not miss critical elements of the material to be learned. One of the advantages of this method is that the student knows immediately whether his answer is correct and he does not have to wait for the teacher to tell him the correct answer.

Variable Features in Projects

Project 1

Emphasis given to:

1. prescription based on pupil diagnosis
2. language development
3. developmental sequence of skills
4. reading specialist
5. aide training program
6. individual pupil diagnosis
7. wide variety of reading materials
8. parental involvement regarding child

Project 10

While the most frequently mentioned material used in this project was Sullivan Programmed Materials, certain schools used other materials and great variability was demonstrated in points of emphasis between schools. However, from the information obtained, it would seem that the following were common points of emphasis:

1. prescription based on pupil diagnosis
2. emphasis on vocabulary building
3. paid teacher aide
4. teacher and aide training program
5. pre and post testing
6. wide variety of instructional reading materials
7. small group instruction

Project 12

Emphasis given to:

1. emphasis on word recognition skills
2. increased use of library
3. prescription based on diagnosis
4. paid teacher aides
5. aide training program
6. wide variety of instructional materials
7. small group instruction

Project 18

Emphasis given to:

1. comprehension and recall of material
2. vocabulary building
3. counselling students
4. tutors
5. tutor training program
6. early identification of reading difficulties
7. high interest reading materials
8. evaluation plan

PROGRAM 9: THE READING LABORATORY, Science Research Associates, publisher

The Reading Laboratory is an individualized reading system based on the principle that learning is most effective if the student starts at his own level, where he is assured success, and proceeds as fast as his learning rate permits.

Skills taught in the program are ranked on a difficulty continuum from easy to hard. Each student has his own program, beginning at the point where he successfully reads and comprehends.

Both immediate and long-range feedback are provided. The student evaluates his own progress. He is presented with increasingly difficult materials as his skills develop.

Variable Features in Projects

Project 4

Emphasis given to:

1. word recognition skills
2. token reinforcement for pupils
3. language development
4. tutors
5. tutor training program
6. early identification of pupils reading difficulties
7. wide variety of instructional reading materials
8. small group instruction

Project 7

Emphasis given to:

1. multiple teaching methods
2. prescription based on pupil diagnosis
3. use of experience stories
4. use of reading specialist

5. aide training program
6. individual pupil diagnosis
7. wide variety of instructional reading material
8. needs assessment

PROGRAM 10: PEABODY LANGUAGE DEVELOPMENT, Open Court Publishing Company

Peabody Language Development treats reading as one facet of the total language arts domain. The program relies on what the child produces in writing for the exercises, but at the same time direct teaching is provided. Self-teaching guided by the teacher is a fundamental aspect of the program. The child's work is evaluated in terms of what he does correctly rather than what he does incorrectly. The program generally contains the following elements: (1) phonics, (2) story background, (3) difficult words, (4) silent reading and discussion, (5) oral reading, (6) composition, (7) sentence lifting from student compositions, (8) proofreading, (9) vocabulary development, (10) researching and reporting.

Variable Features in Projects

Project 6

Emphasis given to:

1. prescription based on pupil diagnosis
2. developmental sequence of skills
3. multiple teaching methods
4. reading specialist
5. teacher training program
6. individual pupil diagnosis
7. wide variety of instructional reading materials
8. needs assessment

PROGRAM 11: ECLECTIC, no particular publisher

An eclectic program does not use any particular set of prepared materials. It relies on the teacher possessing a knowledge of what needs to be taught for a child to learn to read. It takes into account that different children may learn better with one procedure than another. The teacher is provided with many different materials and has the latitude to select from among those materials to provide a child with a particular concept he needs.

Variable Features in Projects

Project 5

Emphasis given to:

1. prescription based on pupil diagnosis
2. developmental sequence of skills

3. reteaching
4. paid aides
5. teacher training program
6. individual pupil diagnosis
7. expansion of library materials
8. needs assessment

Project 9

Emphasis given to:

1. vocabulary building
2. comprehension and recall
3. word recognition skills
4. reading specialist
5. teacher training program
6. early identification of pupil reading difficulty
7. wide variety of instructional reading materials
8. small group instruction

Project 16

Emphasis given to:

1. attitudinal change
2. multiple teaching methods
3. pupils self-pacing of own learning rate
4. reading specialist
5. aide training program
6. individual pupil diagnosis
7. high interest reading materials
8. attention to learning environment

Project 19

Emphasis given to:

1. prescription based on pupil diagnosis
2. developmental sequence of skills
3. use of multiple teaching methods
4. reading specialist
5. teacher training program
6. individual pupil diagnosis
7. variety of instructional reading materials
8. written goals and objectives

Project 20

Emphasis given to:

1. prescription based on pupil diagnosis
2. language development
3. reinforcement of reading skills in other content areas
4. paid teacher aides

5. teacher training program
6. early identification of pupils reading difficulties
7. small group instruction

PROGRAM 12: SUPPLEMENT BASAL READER, American Book Company, publisher

The Supplement Basal Reader Program did not depart from the program already being used in the school district. The special aspect of the program was the provision of special help to those pupils who were experiencing low-achievement in relation to their regular school lessons.

Variable Features of Projects

Project 17

Emphasis given to:

1. prescription based on pupil diagnosis
2. developmental sequence of skills
3. emphasis on reteaching
4. reading specialist
5. outside resource personnel provided
6. individual pupil diagnosis
7. central bank of materials
8. evaluation plan

PROGRAM 13: INSERVICE EDUCATION

This program proceeded from the assumption that materials packages were relatively unimportant in the improvement of reading ability in low-achieving pupils. The entire emphasis was directed to the improvement of teachers' ability to deal with low-achievement when they encounter it.

Project 2

Emphasis given to:

1. reading coordinator
2. staff visits other teachers' classes
3. teacher training program
4. provision of demonstration teaching
5. early identification of pupil's reading difficulties
6. pre- and post-testing
7. video taped lessons
8. staff involvement in activity planning

PROGRAM 14: EQUAL USE OF DECODING FOR READING AND DISTAR

This program was a combination of the materials used in programs 1 and 2. Descriptions of the programs are provided under those headings.

PROGRAM 15: EQUAL USE OF DECODING FOR READING AND PROGRAMMED READING

This program was a combination of materials used in program 1 and 8. Descriptions of the programs are provided under those headings.

Chapter 4

RESULTS

A. DATA COLLECTED

Each of the 21 projects selected their students on the basis of a screening test to determine if the child was behind in reading achievement. In most cases, this screening was based on the regular school testing program. Pre-tests in attitude and reading achievement were administered in October. The attitude form is shown in Appendix B. It was developed under contract by the Laboratory of Educational Research at the University of Colorado-Boulder. The comprehension and vocabulary subtests of the Gates-MacGinitie Reading Test were used to measure achievement. The attitude instrument and reading achievement tests were administered again in April or May. Cost accounting was reported at the end of the school year using the form shown in Appendix C.

In addition to the scores for each student, data was collected on age, grade, sex, ethnic category (American Indian, Black or Negro, Oriental, Spanish-surnamed or Chicano, Other), I.Q. scores reported by the district, and screening test results. The achievement tests were scored by the school and reported for each student. The attitude questionnaires were filled out by the students anonymously and returned to the Department. The investigators sampled the attitude data within those projects with greater than 170 students.

B. STUDENTS AND PROGRAMS

The reading programs were conducted during 1972-73. Many students, of course, entered late or dropped out of the program.The data were grouped into four grade groups: 1-3, 4-6, 7-9, and 10-12. It was discovered

that there were virtually no students in the 10th-12th grades on whom data had been collected, so no analysis of the few cases of 10-12 grade records was made. The distribution of students on whom data were collected based on achievement test reports is shown in Table 1 *.

The basic analysis was to compare across those programs described in Chapter 3. Table 2 gives the number of students by program and grade group. Programs with very small enrollments were excluded from the program effects analysis.

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* Ethnic category figures given are those reported by the teachers. Interesting differences occurred between the ethnic category distribution of students as reported by the teachers and as reported by the students themselves. Teachers or other staff members reported ethnic categories on the achievement test reporting forms, while the students reported on themselves on the attitude questionnaires. Students reported more Indian and Other categories, teachers reported more Black and Spanish-surname categories. Table A shows these differences.

Table A

Ethnic Category of Students by Source of Information

Ethnic Category	Grades 1 - 3 Teachers	Grades 1 - 3 Students	Grades 4 - 6 Teachers	Grades 4 - 6 Students	Grades 7 - 9 Teachers	Grades 7 - 9 Students
Indian	1%	2%	1%	4%	0%	4%
Black	15	9	6	3	11	7
Hispano	39	37	36	31	21	19
Other	45	52	57	62	68	70
	100%	100%	100%	100%	100%	100%

TABLE 1

PERCENT OF STUDENTS IN READING ACHIEVEMENT STUDY
BY GRADE, SEX, AND ETHNIC CATEGORY

STUDENT CHARACTERISTICS	GRADE GROUP 1-3	4-6	7-9
SEX			
MALE	60%	61%	59%
FEMALE	40%	39%	41%
ETHNIC CATEGORY			
AMERICAN INDIAN	1%	1%	*
BLACK	15%	6%	11%
ASIAN AMERICAN	*	*	*
SPANISH-SURNAMED	39%	36%	21%
OTHER	45%	57%	68%
TOTAL NUMBER OF STUDENTS	3,693	3,042	1,628

* Less than one Percent

TABLE 2

NUMBER OF PROJECTS, SCHOOLS AND STUDENTS BY PROGRAM

PROGRAM	NO. OF PROJECTS	NO.OF SCHOOLS	NUMBER OF STUDENTS BY GRADE 1-3	4-6	7-9
1. DECODING FOR READING	1	10	7	295	15
2. DISTAR	2	13	433	7	-
3. SYSTEMS	1	7	273	-	-
4. LISTEN, LOOK, AND LEARN	1	6	473	143	-
5. LEARNING 100	1	8	-	-	564
6. GUARANTEED GRADE GAIN	4	78	544	748	136
7. WISCONSIN READING DESIGN	1	24	81	135	99
8. SULLIVAN PROGRAMMED READING	4	19	548	302	76
9. READING LABORABORY	2	18	170	198	2
10. PEABODY LANGUAGE DEVELOPMENT	1	1	48	61	-
11. ECLECTIC	5	15	147	281	583
12. SUPPLEMENTAL HELP	1	10	232	115	-
13. INSERVICE EDUCATION	1	4	83	223	153
14. COMBINATION OF 1 AND 2	1	16	407	359	-
15. COMBINATION OF 1 AND 8	1	4	247	175	-
TOTAL	27	233	3,693	3,042	1,628

C. COSTS

The Colorado Legislature appropriated one million dollars for the 1972-73 fiscal year to be distributed to projects under the Educational Achievement Act. No provisions were made in the legislation for any special form of cost accounting; therefore, the traditional line item budget and accounting system was used rather than a program budget which could have provided better cost analysis.

The instruments used to determine cost information was a line item budget presented at the time of application for funds, and a financial report presented at the end of the program.

In past years financial information was collected only on the funds provided by the State. Many school officials had reported that districts were using not only State funds but they were using local funds as well in the Achievement Act programs. Naturally, this fact caused a distorted picture of actual program costs. For this reason, districts were asked in 1973 to provide an estimate of local fund allocations in their budgets and to provide an accounting for them in their financial reports (See Appendix C for examples of these documents).

The financial reports showed that for every dollar spent by the State, approximately one dollar and forty-two cents was spent by local districts. The State provided 41 percent of the money and local and federal funds provided 59 percent of the money. Federal funds played only a minor role, with most of the additional contributions coming from local sources. (See Table 3).

TABLE 3

TOTAL EXPENDITURES FOR EDUCATIONAL ACHIEVEMENT ACT, 1973

State Appropriation		Local and Federal Sources		Total
Salaries	Contracted Services and Other Expenses	Salaries	Contracted Services and Other Expenses	Total
$601,867.00	$375,199.00	$852,585.00	$574,509.00	$2,404,160.00

Total State Expenditures: $ 977,066

Total Local and Federal: 1,427,094

Local Contribution:		$1,275,070
Title I	ESEA	43,882
Title II	ESEA	55,732
Title III	ESEA	350
NDEA		49,000
Other		3,060
Total		$1,427,094

The largest item of expenditures from all fund sources was for instructional salaries which contributed 59.2 percent of all expenditures. Teaching supplies constituted 18.5 percent of the expenditures and audio visual materials accounted for 2.8 percent. School district expenditures for administration represented only 1.9 percent of all expenditures (See Table 4).

For the purpose of this report, the term "project" is used to designate the total activities undertaken by a local educational agency to meet the purposes of the legislation. The term "program" is used to designate a specific set of inter-related activities designed to carry out the purposes of the legislation, several of which may have been contained within a project. Programs are identified by the most frequently used materials in them or where materials were not emphasized, they are identified by the type of service.

Total projects costs ranged from a low of $25.08 per pupil to a high of $522.74. The median total cost for projects was $173.37. The average total cost for projects was $180.53. (See Table in Appendix D).

Because of the fact that line-item project budgeting and accounting was used rather than program budgeting and accounting, program costs cannot be accurately determined. However, since many of the projects contained a single program, it was possible to derive a reasonable estimate of program costs. Per pupil program costs were based on the number of pupils contracted to be served in project applications rather than on the number with reported achievement data. This was done because of unreported data in achievement reports and it provided a more realistic figure in terms

TABLE 4

STATE AND OTHER EXPENDITURES BY EXPENDITURE CLASSIFICATION

CATEGORY OF EXPENDITURE	EXPENDITURES BY SOURCE OF FUNDS					
	State		Local & Federal		Total	
	$	%	$	%	$	%
100 Administration	42,658	4.4	2,945	0.2	45,603	1.9
210 Instruction (Salaries)	573,850	58.7	850,830	59.6	1,424,680	59.3
220 Textbooks	11,528	1.2	206,052	14.4	217,580	9.1
231 School Library	16,269	1.7	55,017	3.9	71,286	3.0
232 Audio Visual Materials	48,117	4.9	20,567	1.4	68,684	2.9
240 Teaching Supplies	173,882	17.8	269,870	18.9	443,752	18.5
250 Inservice Education	18,857	1.9	1,636	-	20,493	0.1
300 Attendance Services	-0-	-	1,000	-	1,000	-
400 Health Services	-0-	-	65	-	65	-
500 Pupil Transportation	2,470	-	1,860	-	4,330	-
600 Operation of Plant	3,700	-	4,210	-	7,909	-
700 Maintenance of Plant	5,439	0.1	2,340	-	7,779	-
800 Fixed Charges	28,700	2.9	10,387	0.1	39,087	1.6
900 Food Services	-0-	-	-0-	-	-0-	-
1000 Student Body Activities	99	-	-0-	-	99	-
1100 Community Services	107	-	15	-	122	-
1210 Construction	7,566	0.1	300	-	7,866	-
1230 Instructional Equipment	43,824	4.5	-0-	-	43,824	1.8
TOTAL	$977,066		$1,427,094		$2,404,160	

of the population served.

Total per pupil program costs ranged from a low of $25.95 to a high of $227.48. The median per pupil total program cost was $173.37. The mean per pupil total program cost was $180.53 (Table 5).

It should be noted that little control over local and federal cost figures was available and that those at the extremes of low contributions and high contributions may have tended to exaggerate their contributions. Thus, the program with the lowest per pupil expenditure was an inservice education program and actual reading program costs were not reflected. It is not known what factors were considered in allocating local and federal costs in the higher priced programs. All salaries of teachers in regular school programs may have been reported when in fact the request was for costs directly attributable to the reading project purposes. Local salary schedules, which can differ by 25 percent, make cross-district comparisons difficult.

D. ACHIEVEMENT

Overall, over the six or seven months between pre-and post-tests, the students gained from seven to twelve months in reading achievement. At the time of the pre-test, the students had been averaging six to eight months gain per year with about one-third of the students averaging seven to nine months gain per year. During the 1972-73 programs, well over half of the students gained seven months. The primary grades showed the least increase in rate of gain in reading comprehension. Table 6 shows several measures of reading gain by grade group.

TABLE 5

EXPENDITURES AND COST PER PUPIL BY PROGRAM

	Number Pupils in Proposal	State Expenditure	State Cost Per Pupil	Local & Fed. Expenditure	Loc.& Fed. Cost/Pupil	Total Cost/Pupil
1. Decoding for Reading	484	24,597	50.82	82,538	170.53	221.35
2. Distar	750	44,420	59.23	139,227	185.64	244.87
3. S.F. Systems	484	24,597	50.82	82,538	170.53	221.35
4. Listen, Look, Learn	1,028	52,268	50.84	175,394	170.62	221.46
5. Learning 100	968	49,193	50.82	165,077	170.53	221.35
6. Guaranteed Grade Gain	2,039	200,042	98.11	134,452	65.94	164.05
7. Wisconsin Reading Design	300	66,148	220.49	-0-	-0-	220.49
8. Sullivan Programmed Reading	1,524	126,371	82.92	153,016	100.40	183.32
9. Reading Laboratory	603	54,712	90.73	9,673	16.04	106.77
10. Peabody Language Development	308	63,889	207.43	6,174	20.05	227.48
11. Electic	1,618	135,044	83.47	13,906	8.59	92.06
12. Supplemental Help	580	16,594	28.61	111,600	192.41	221.02
13. Inservice Education	559	14,506	25.95	-0-	-0-	25.95
14. Combination of 1 and 2	1,331	67,641	50.82	226,981	170.53	221.35
15. Combination of 1 and 8	726	36,895	50.82	123,808	170.53	221.35
Total	13,302	976,992	73.45	1,424,384	107.08	180.53

TABLE 6

PRE-SCORES, GAIN-SCORES, AND POST-SCORES BY GRADE GROUP

	GRADE GROUP		
	1-3	4-6	7-9
PRE-SCORES			
MEAN REPORTED IQ	94	92	93
IQ RANGE	51-136	59-131	58-130
MONTHS BEHIND IN QUALIFYING TEST	9 mos.	2 yrs.	2 1/2 yrs.
MONTHS BEHIND IN COMPREHENSION PRETEST	1 yr.	2 yrs.	2 1/2 yrs.
AVERAGE GAIN PER YEAR	8 mos.	6 mos.	7 mos.
PERCENT AVERAGING 7 MONTHS COMPREHENSION PER YEAR AT START OF PROGRAM	34%	25%	38%
GAIN-SCORES AND POST-SCORES			
PERCENT GAINING 1 YEAR	38%	44%	51%
PERCENT GAINING EXPECTED 7 MONTHS COMPREHENSION	55%	58%	61%
PERCENT LOSING COMPREHENSION	6%	15%	18%
MEAN VOCABULARY GAIN	9 mos.	8 mos.	7 mos.
MEAN COMPREHENSION GAIN	8 mos.	9 mos.	12 mos.
MONTHS BEHIND IN COMPREHENSION POST-TEST	5 mos.	1yr.7mos.	2 yrs.

Several criterion variables were considered. Gain scores were computed for vocabulary and comprehension. The correlation across students between vocabulary grade equivalent gain and comprehension grade equivalent gain was .47 in grades 1-3, .29 in grades 4-6, and .14 in grades 7-9. In addition, the post test difference between actual grade placement and test grade equivalent was computed (months behind grade placement). Furthermore, the grade equivalent scores reported by the projects were converted to standard scores from the publishers' norm tables. Standard scores have the advantage of a regular distribution and statistical soundness for comparisons across grades, time and tests. Grade equivalent scores have the advantage of ease of interpretation and familiarity for most readers. The correlations between standard scores and grade equivalent scores were in the.70's for grade group 1, in the .50's for grade group 2, and in the .90's for grade group 3. When the programs were ranked for their gain, the correlations between rankings based on grade equivalent scores and rankings based on standardized scores varied only from .86 to 1.00. In order to simplify the presentation of results, and since only minor differences would occur by using one form or another, results will be presented using the grade equivalent analyses.

Program Comparisons

The achievement analysis attempted to answer the question: "Was there a difference in achievement among programs?"

Since no assignment of students to programs was possible, and since we know the different programs were in different projects or school districts, it was expected that the students would differ among programs. Because of the difference among districts and the large sample sizes, virtually

all tests for sample differences were significant, notably in ethnic distribution and in pre-test scores.

Inasmuch as there were sample differences, achievement gain analyses were run, adjusting for pre-test differences. Analysis of covariance was used, using as covariates age, grade, sex, ethnic category, and months behind grade placement on the pre-tests for vocabulary and comprehension.

Table 7 presents the gains in grade equivalent by program without adjustment (covarying) on sample characteristics. Covarying on the six variables indicated above did make a difference in results. The multiple correlations between the criterion gain scores and the covariates ran from .27 to .41.

Table 8 presents the comparisons among programs before and after adjustments (partialing out effects of covariates). Rather than present the results in terms of computed effects, the programs have been ranked with the first rank going to the program showing the most gain. Attention should be paid primarily to the adjusted score rankings in order to take account of student differences among programs.

The following programs, in order, showed the leading gains in grades 1-3:

11. Eclectic approach
12. Supplemental help-aides
9. SRA Reading Laboratory
4. E.D.L. Listen, Look and Learn
7. Wisconsin Reading Design
13. Inservice Education
8. Sullivan Programmed Reading

TABLE 7

GRADE EQUIVALENT GAINS BY PROGRAM AND GRADE GROUP

	PROGRAM	GAIN IN MONTHS: VOCABULARY 1-3	VOCABULARY 4-6	VOCABULARY 7-9	COMPREHENSION 1-3	COMPREHENSION 4-6	COMPREHENSION 7-9
1.	DECODING FOR READING	-	9	-	-	8	-
2.	DISTAR	8	-	-	6	-	-
3.	SYSTEMS	8	-	-	7	-	-
4.	LISTEN, LOOK, AND LEARN	9	6	-	8	7	-
5.	LEARNING 100	-	-	6	-	-	10
6.	GUARANTEED GRADE GAIN	8	8	5	8	9	12
7.	WISCONSIN READING DESIGN	10	9	9	9	11	14
8.	SULLIVAN PROGRAMMED READING	8	8	8	9	8	9
9.	READING LABORATORY	11	9	-	10	11	-
10.	PEABODY LANGUAGE DEVELOPMENT	4	3	-	3	3	-
11.	ECLECTIC	12	7	9	12	10	15
12.	SUPPLEMENTAL HELP	11	9	-	13	14	-
13.	INSERVICE EDUCATION	8	6	3	9	11	12
14.	COMBINATION OF 1 AND 2	8	6	-	6	8	-
15.	COMBINATION OF 1 AND 8	8	7	-	6	7	-

NOTE: Grade equivalent gain are without any adjustment for sample characteristics or pre-test scores and rounded to nearest month.

TABLE 8

RANKING OF READING PROGRAMS ON GRADE EQUIVALENT GAIN IN VOCABULARY AND COMPREHENSION BY GRADE GROUPS

PROGRAM	GRADES 1 - 3				GRADES 4 - 6				GRADES 7 - 9			
	Vocab.		Compr.		Vocab.		Compr.		Vocab.		Compr.	
	Raw	Adj.	Raw	Adj.	Raw	Adj.	Raw	Adj.	Raw	Adj.	Raw	Adj.
1. DECODING FOR READING	-	-	-	-	3	4	8	10	-	-	-	-
2. DISTAR	11	10	11	10	-	-	-	-	-	-	-	-
3. SYSTEMS	6	6	9	8	-	-	-	-	-	-	-	-
4. LISTEN, LOOK, AND LEARN	5	5	7	4	9	9	10	9	-	-	-	-
5. LEARNING 100	-	-	-	-	-	-	-	-	4	4	5	6
6. GUARANTEED GRADE GAIN	8	8	8	9	5	5	5	5	5	6	3	2
7. WISCONSIN READING DESIGN	4	4	4	6	4	3	4	3	1	2	2	5
8. SULLIVAN PROGRAMMED READING	7	7	6	7	6	6	7	7	3	3	6	4
9. READING LABORATORY	2	2	3	3	1	2	2	2	-	-	-	-
10. PEABODY LANG. DEVELOPMENT	13	13	13	13	12	12	12	12	-	-	-	-
11. ECLECTIC	1	1	2	1	7	8	6	6	2	1	1	1
12. SUPPLEMENTAL HELP	3	3	1	2	2	1	1	1	-	-	-	-
13. INSERVICE EDUCATION	9	9	5	5	11	7	3	4	6	5	4	3
14. COMBINATION OF 1 AND 2	12	11	12	12	10	11	9	8	-	-	-	-
15. COMBINATION OF 1 AND 8	10	12	10	11	8	10	11	11	-	-	-	-

NOTE: Raw score ranks are based on G.E. gains on Gates-MacGinitie. Adjusted score ranks are G.E. gains after partialling out effects of age, grade, sex, ethnic category and pre-test scores.

3. Scott Foresman SYSTEMS
6. Hoffman Guaranteed Grade Gain
2. SRA DISTAR

The Distar program may have suffered in comparing gain by being used in one of the two Distar projects with only unusually behind students. The other three programs not listed failed to reach expected gain levels. The correlation between vocabulary gain rank and comprehension gain rank was .92 ($P < .001$). In grades 4-6 the following programs, in order, showed the most gain:

12. Supplemental help--aides
9. SRA Reading Laboratory
7. Wisconsin Reading Design
6. Hoffman Guaranteed Grade Gain
13. Inservice Education
1. McMillan Decoding for Reading
11. Eclectic approach
8. Sullivan Programmed Reading

The other four programs not listed failed to reach expected gain levels. The correlation between vocabulary gain rank and comprehension gain rank was .79 ($p < .01$).

In grades 7-9 there was virtually no correlation between vocabulary gain rank and comprehension gain rank ($r=.03$). The eclectic approach showed the most gain. The Wisconsin Reading Design showed high grade equivalent gain but in covariance analysis, the comprehension gain came in fifth. All six programs reached expected gain level in comprehension and in the average of comprehension and vocabulary scores, in the following order:

11. Eclectic approach
7. Wisconsin Reading Design
8. Sullivan Programmed Reading
6. Hoffman Guaranteed Grade Gain
13. Inservice education
5. E.D.L. Learn 100

Ethnic Category Comparisons

Ethnic category differences in achievement were significant at all three grade levels. Table 9 presents the months gain in grade equivalent scores in vocabulary and comprehension and the rank order of the ethnic categories in effect on gain after partialling out the effects of age, grade, sex, and pre-test values in months behind grade in vocabulary and comprehension.

As Table 9 shows, the "Other" ethnic category gained the most, Spanish surnamed Americans gained next most and Blacks gained least. In all cases the ethnic variable was significant, although in some vocabulary gain contrasts the difference between Black and Chicano effects were nonsignificant (that is, Black and Chicano gained about the same and "Other" gained significantly more).

E. ATTITUDES

The attitude questionnaires, because they were answered anonymously, could not be linked at the student level with either post-test attitudes or achievement. The items were each answered: Yes, ?, No. Responses of don't know, not sure, or sometimes yes--sometimes no were to be answered by circling the question mark. Coding for analysis was: Yes=1, ?=2, No=3. The percent answering yes to each item is shown in Appendix E.

TABLE 9

GRADE EQUIVALENT GAIN IN VOCABULARY AND READING COMPREHENSION BY ETHNIC GROUP

ETHNIC CATEGORY	Grade 1-3 RAW MEAN	Grade 1-3 ADJ. RANK ORDER	Grade 4-6 RAW MEAN	Grade 4-6 ADJ. RANK ORDER	Grade 7-9 RAW MEAN	Grade 7-9 ADJ. RANK ORDER
VOCABULARY G.E. GAIN						
BLACK	.72	3	.74	3	.57	3
CHICANO	.82	2	.70	2	.55	2
OTHER	.91	1	.78	1	.78	1
COMPREHENSION G.E. GAIN						
BLACK	.62	3	.72	3	.84	3
CHICANO	.78	2	.82	2	1.01	2
OTHER	.92	1	.99	1	1.35	1

NOTE: Raw score means are grade equivalent gains in months. Adjusted rank order is the rank order of effects of ethnic category on gain after partialling out the effects of age, grade, sex, and pre-test scores.

In order to reduce the 28 items to a more manageable set, the pre-test questionnaire responses were factor analyzed within each grade level (principal axes, oblique rotation on the SPSS statistical computer package). A detailed report of the factor analysis results will not be presented in this report. The six factors extracted were compared across grade levels since common factors or items at all grade levels were desired in order to reduce complexity in reporting results. Three factors were found in common. The first factor in each analysis did not contain items in common across the three grade groups, so the items from the first factor were used as single item measures.

The six attitude measures derived are indicated in Table 10. The scores for the multi-item factors were the mean item response. Lower attitude scores meant more favorable attitudes. The pre-test attitude scores were analyzed separately by sex, ethnic category, and program.

Overall, most attitudes were less favorable in the spring than in the fall. "Liking school" in particular dropped off from fall to spring. Factor 3 (reading better) and factor 6 (actually reading) showed the most gain in attitude. Factor 5 (self image), logically an important variable, showed the least change during the reading programs. The younger students generally had more favorable attitudes than the older students, except in factor 6 (reading) where the older students reported more reading. On the other hand, the younger students showed more negative change and the older students more positive change.

On all factors in grades 1-6, and all but two in grades 7-9, girls showed more favorable attitudes than boys. There were significant differences between boys and girls' scores on all but factor 3 (reading better),

TABLE 10

READING ATTITUDE FACTORS

FACTOR NO.	ITEM NO.	ITEM CONTENT	FACTOR NAME
1	Item 1 +	Likes School	Likes School
2	Item 2 +	Likes to Read	Likes to Read
3	Item 10 +	Reading Better Than Last Year	Reading Better
4	Item 17 +	Likes to Read to Teachers	Likes to Read to Others
	Item 18 +	Likes to Read to Parents	
	Item 23 +	Likes to Read to Others	
5	Item 11 -	Reads Slowly	Self Image as Reader
	Item 15 +	Pleased With Reading	
	Item 24 +	Parents Pleased	
	Item 26 +	Thinks Reads Well	
6	Item 4 +	Reads When Doesn't Have to	Reads
	Item 6 +	Reads Newspaper	
	Item 20 +	Looks at Magazines	
	Item 21 +	Likes to read Magazines	

but in general, boys and girls changed scores in the same direction.

Attitude Changes by Program

Each attitude factor within each grade group was analyzed across reading programs. In nearly all cases, there were significant differences among programs on pre-test and post-test attitude scores. Looking at differences between pre- and post-test means within each program showed that about 45 percent of the attitude changes were significant (t test for correlated means). Of the significant changes, 37 percent of the grade 1-3 changes were favorable, 61 percent of the grade 4-6 changes were favorable, and 76 percent of the grade 7-9 changes were favorable. Since the older students started with less favorable attitudes, the result is that the initially high and low groups moved toward the center.(See Appendix F for tables showing pre-and post-test mean scores by program).

In general, the programs did not produce consistent attitude change (Table 11). In grades 1-3 the following programs produced the most favorable changes:

12. Supplemental help (aides)
14. Combination of Distar and Decoding for Reading
3. Scott Foresman SYSTEMS

Unfavorable attitude changes were most associated with:

4. E.D.L. Listen, Look and Learn
6. Hoffman Guaranteed Grade Gain
7. Wisconsin Reading Design
15. Combination of Sullivan and Decoding for Reading

In grades 4-6, the following programs produced the most favorable attitude changes:

TABLE 11

SIGNIFICANT FAVORABLE (F) AND UNFAVORABLE (U) ATTITUDE CHANGE BY GRADE GROUP AND PROGRAM

	GRADES 1-3 FACTOR 1 2 3 4 5 6	GRADES 4-6 FACTOR 1 2 3 4 5 6	GRADES 7-9 FACTOR 1 2 3 4 5 6
1. DECODING FOR READING	- - - - - -	F F F F F	- - - - - -
2. DISTAR	U F U	- - - - - -	- - - - - -
3. SYSTEMS	U F F U	- - - - - -	- - - - - -
4. LISTEN, LOOK, AND LEARN	U U U	F F U F	- - - - - -
5. LEARNING 100	- - - - - -	- - - - - -	F F
6. GUARANTEED GRADE GAIN	U U U	U U U F	U U F U
7. WISCONSIN READING DESIGN	U U F U	F	U F
8. SULLIVAN PROGRAMMED READING	U F	U U F U	F F
9. READING LABORATORY	U F	F U	F F F F
10. PEABODY LANGUAGE DEVELOPMENT	U F	U F	- - - - - -
11. ECLECTIC	U U F	F F F	F
12. SUPPLEMENTAL HELP	F F	F	- - - - - -
13. INSERVICE EDUCATION	F U U		F F
14. COMBINATION OF 1 AND 2	F U F	F F	- - - - - -
15. COMBINATION OF 1 AND 8	F U U U	U U U	- - - - - -

1. McMillan Decoding for Reading

11. Eclectic Approach

4. E.D.L. Listen, Look and Learn

14. Combination of Distar and Decoding for Reading

Unfavorable attitude changes were most associated with:

15. Combination of Sullivan and Decoding for Reading

6. Hoffman Guaranteed Grade Gain

8. Sullivan Programmed Reading

In grades 7-9, the following programs showed the most favorable attitude changes:

9. SRA Reading Laboratory

5. E.D.L. Learning 100

8. McGraw-Hill Sullivan Programmed Reading

13. Inservice Education

Unfavorable attitude changes occurred only in:

6. Hoffman Guaranteed Grade Gain

Ethnic Differences in Attitude

There were significant differences among ethnic categories (Black, Chicano, Other) in their reading attitudes in grades 1-6. Only three out of 12 attitude comparisons were significantly different in grades 7-9.

In grades 1-6, the "Other" category (mostly caucasion) had the least favorable attitudes. In grades 1-3, the Spanish surnamed had the most favorable attitudes, and the Blacks were in the middle in attitudes. In grades 4-6, the Black and Chicano varied in holding the most positive attitude. In grades 7-9, no one group was consistently high or low in attitude.

In terms of change scores, all ethnic categories in grades 1-3 became less favorable on factor 1 (like school). Blacks and Spanish surname reported reading less by the end of the year,"Other" reported reading more. In grades 4-6, all ethnic categories reported reading more but liking to read to others less. Blacks reported liking school more but not reading better than the previous year, while the Spanish surname and "Other" categories liked school less but felt they were reading better than the last year. In grades 7-9, the Blacks showed more unfavorable attitude change than either the Chicano and "Other" categories. All groups reported reading better than last year, but the Blacks reported reading less while the Hispanos and "Other" reported reading more.

Chapter 5

CONCLUSIONS

The additional reading program effort produced by the funds in the Colorado Educational Achievement Act did lead to increased gains by students who were behind in reading achievement. Students who had been averaging six to eight months reading gain per school year before the program increased their gains by an average of more than 50 percent. That is, over just the seven months of the testing period the students in these projects averaged seven to twelve months gain, depending on grade level and test. Most programs showed moderate reading achievement gains of seven to nine months during the seven month testing period. A few programs showed high gain and a few gained less than grade equivalent or gained less than the students had averaged before the program started. Attitude changes, for the most part, were neutral, with as many unfavorable as favorable changes occurring. Table 12 summarizes achievement and attitude change by reading program and grade.

Among the more successful programs in terms of positive achievement growth and positive attitude change the following characteristics were found to be most common:

a prescription based on diagnosis of pupils
a developmental sequence of skills
a wide variety of instructional reading materials available
pupil problems identified early
staff involvement in planning
paid teacher aides
aide training
teacher training

A cost-effectiveness analysis of the data was performed which is subject to the following limitations:

TABLE 12

SUMMARY OF ACHIEVEMENT AND ATTITUDE CHANGE BY GRADE, GROUP, AND READING PROGRAM

	ATTITUDE CHANGE	ACHIEVEMENT GAIN		
		HIGH	MODERATE	LOW
GRADES 1-3	POSITIVE	12	3	14
	NEUTRAL	9, 11	2, 8, 13	10
	NEGATIVE		4, 6, 7	15
GRADES 4-6	POSITIVE		1, 11	4, 14
	NEUTRAL	7, 9, 12	13	10
	NEGATIVE		6, 8	15
GRADES 7-9	POSITIVE		5, 8, 13	
	NEUTRAL	7, 11		
	NEGATIVE		6	

PROGRAM

1 - Decoding for Reading, MacMillan
2 - Distar, S.R.A.
3 - Systems, Scott Foresman
4 - Listen, Look, and Learn, McGraw-Hill
5 - Learning 100, McGraw-Hill
6 - Guaranteed Grade Gain, Hoffman
7 - Wisconsin Reading Design, Interpretive Scoring System
8 - Sullivan Programmed Reading, McGraw-Hill
9 - Reading Laboratory, S.R.A.
10 - Peabody Language Development, Open Court
11 - Eclectic--Multiple Material
12 - Supplemental Help to Basal Reader
13 - Inservice Education
14 - Combination of 1 and 2
15 - Combination of 1 and 8

1. All programs showed a reasonable degree of pupil improvement, therefore the cost effectiveness analysis is restricted to productive programs rather than a comparison with non-productive programs.
2. Only one year of study limits the degree of confidence one can place in the results. If programs retained their relative rank over several fiscal years one could assume with more confidence that the cost-effectiveness rankings established during this year were reasonably accurate.
3. One must not assume that because we have utilized the educational materials as a means of identifying programs, that the materials are exclusively responsible for the results. Most of these materials have been rather thoroughly field tested and researched by their publishers prior to publication. Other variables are present in all cases, some known and others unknown, which contribute to the results of the program.

Three factors were taken into account in making a determination of cost-effectiveness: (1) ranking of total per pupil costs, (2) ranking of achievement gain in comprehension and in vocabulary, and (3) ranking of attitude improvement or loss. In all cases the rankings were from 1 to 15 and combined across all three grade groups.

Total costs from all sources; local, state and federal, were divided by the number of pupils in the program. These were ranked with the lowest cost assigned the number 1 and the highest cost assigned the highest number. Identical costs were assigned identical rank numbers.

Achievement gains as measured by the Gates-MacGinitie reading test were ranked with the greatest gain assigned the number 1 and the least gain assigned the highest number. Identical gains received identical rank.

Attitude factors were ranked by assigning +2 to Favorable factors, -2 to Unfavorable factors and 0 to Neutral factors, then dividing by the number of factors reported to derive a total rank score. Rank scores were then ranged with the most favorable score ranked 1 and the least favorable ranked highest.

All rankings, cost, achievement and attitude, were then totaled to a composite score and ranked with the most cost-effective assigned a rank of 1 and the least cost effective assigned the highest number. Identical scores received identical rank numbers. Table 13 shows the programs ranked considering all these factors with the program indicated as being the most cost-effective ranked 1. It should be noted that the first four programs in rank order are those which leave considerable latitude to teachers in deciding what materials to use with the pupil.

It should be noted also that in considering cost-effectiveness of these programs that there were intervening variables which were not accounted for, such as the fact that some programs had experience with such projects prior to this year and some did not, or staff turnover may have made a difference and countless other variables. The rank numbers given should be treated only as indicators, not absolutes. No reflection on the quality of program materials is intended through these rankings, for the same materials in another context could very well show a different rank order than the one emerging from this situation.

Table 13

SUMMARY OF PROGRAM EFFECTIVENESS RANKS

	Mean Rank Across Grades				
	Vocabulary Gain	Comprehension Gain	Attitude Gain	Cost	Total Rank
SRA Reading Laboratory	2	2	5	3	1
Supplemental Help	1	1	3.5	7	2
Eclectic	3	3	6	2	3
Staff In-Service Education	11	4	7	1	4
Wisconsin Reading Design	4	6	12	6	5.5
Decoding for Reading	5	12	1	10	5.5
Sullivan Programmed Reading	7	8	9.5	5	7
Guaranteed Grade Gain Program	10	5	14	4	8
Learning Systems	6	9	9.5	10	9
Learning 100	9	14.5	2	10	10
Listen, Look and Learn	8	7	9.5	13	11
Combination: Distar and Decoding	14	11	3.5	10	12
Distar	12	10	13	15	13
Combination: Sullivan and Decoding	13	13	15	10	14
Peabody Language Development	15	14.5	9.5	14	15

The following conclusions, based on the findings from this study, are offered to persons planning program development in reading achievement:

1. Additional effort, made possible by the incentive of additional funds, can produce significant reading achievement gains.

2. Inservice education for all teaching staff which is relevant to reading remediation in the classroom can produce results.

3. When programs are established, the data seems to show that those which allow the teacher wide latitude in the choice of materials and procedures produce good results.

4. Organized commercially prepared programs may or may not produce results depending upon a wide variety of other variables in the learning environment.

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4. Charters, W. W. Jr. and Jones, John E. "On the Risk of Appraising Non-Events in Program Evaluation," Educational Researcher. 2(11): 5 - 7, November, 1973.

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APPENDICES

APPENDIX A

PROGRAM CHARACTERISTICS

EDUCATIONAL ACHIEVEMENT ACT FY 1973

CURRICULUM CHARACTERISTICS

1. Prescription based on pupil diagnosis
2. Emphasis on language development
3. Use of instructional units
4. Accomodation of pupil learning rate through self pacing
5. Token reinforcement for pupils
6. Use of a developmental sequence of skills to be learned
7. Use of multiple teaching methods
8. Emphasis on vocabulary building
9. Emphasis on word recognition skills
10. Use of experience stories
11. Emphasis on reteaching
12. Reinforcement of reading skills in other content areas
13. Emphasis on the study skills
14. Emphasis on comprehension and recall
15. Provision for counselling
16. Increased use of library

STAFF CHARACTERISTICS

17. Volunteer aides
18. Paid aides
19. Reading coordinator
20. Reading specialist
21. University interns
22. Psychologist
23. Speech Therapist
24. Counselor
25. Students assisting other students
26. Tutors

STAFF DEVELOPMENT CHARACTERISTICS

27. Provision of aide or tutor training program
28. Provision of teacher training program
29. Provision of demonstration teaching
30. Staff visits other teachers classes
31. Outside resource personnel provided
32. Project has design for dissemination

EVALUATION CHARACTERISTICS

33. Children having difficulty with reading identified early
34. Individual pupil diagnosis
35. Pre and post testing

MATERIALS AND EQUIPMENT CHARACTERISTICS

36. Video taped lessons
37. Central bank of materials
38. Expansion of library materials
39. Multicultural materials
40. Reading games
41. Wide variety of instructional reading materials
42. High interest reading materials

COMMERCIALLY PREPARED INSTRUCTIONAL PACKAGES

43. Distar
44. Dorsett
45. Other (name)
46. Teaching machines
47. Audio-visual equipment
48. Tapes
49. Filmstrips

PLANNING AND ORGANIZATIONAL CHARACTERISTICS

50. Parental involvement in planning
51. Parental involvement regarding child
52. Needs assesment
53. Written goals and objectives
54. Staff involvement in activity planning
55. Evaluation plan
56. Reading laboratories
57. Attention to learning environment
58. Team teaching
59. Mobile van
60. Small group instruction
61. Home visitation
62. Public information

Robert F. Cheuvront
12/19/72

APPENDIX B

COLORADO READING ATTITUDE INVENTORY

Directions for Administration. The time required to administer this inventory is 10-20 minutes depending on grade level. Each student should have a copy of the special answer sheet, a pencil and an eraser. Pens should not be used. The directions to be read to the students are capitalized. Before starting the test, print the name of the school, the school district and the teacher on the black board, arranged in the order it is requested on the answer sheet. If possible arrange for a proctor to help answer the questions that will be asked by individual pupils, especially at the primary grades.

WE WOULD LIKE TO KNOW HOW STUDENTS FEEL ABOUT BOOKS AND READING. EACH OF YOU SHOULD HAVE A PENCIL, ERASER, AND A SPECIAL ANSWER SHEET WITH THE WORDS "COLORADO READING ATTITUDE INVENTORY" AT THE TOP. RAISE YOUR HAND IF YOU DO NOT HAVE THESE ITEMS (pause).

NOTICE THAT THERE ARE SEVERAL BLANKS AT THE TOP OF THE ANSWER SHEET. PLEASE FILL IN THE BLANKS LIKE THE EXAMPLE ON THE BLACKBOARD. FOR QUESTION "A" WRITE THE NAME OF THE SCHOOL. FOR QUESTION "B" WRITE THE NAME OF THE SCHOOL DISTRICT AS SHOWN ON THE BLACKBOARD. WRITE YOUR TEACHER'S NAME FOR QUESTION "C". (Note, if a student has more than one teacher, use the name of the reading teacher.) FOR QUESTIONS "D" AND "E" GIVE YOUR GRADE AND AGE. (pause) FOR QUESTION "F", PUT A CHECK MARK BY BOY OR GIRL. FOR QUESTION "G", PLACE A CHECK MARK TO SHOW IF YOU ARE AN AMERICAN INDIAN, NEGRO, ORIENTAL, OR CHICANO. MARK "OTHER" IF YOU DO NOT BELONG TO ANY OF THE GROUPS LISTED. RAISE YOUR HAND IF YOU HAVE A QUESTION ABOUT MARKING QUESTION "G". (For pupils in the primary grades, the teacher and proctor will need to help the pupils with this question.)

I AM GOING TO READ SEVERAL QUESTIONS ABOUT BOOKS AND READING. PLEASE BE COMPLETELY HONEST IN YOUR ANSWERS. NOTICE THAT YOU DID NOT WRITE YOUR NAME ON THE ANSWER SHEET. NO ONE WILL KNOW HOW YOU ANSWERED THE QUESTIONS EXCEPT FOR YOU. THIS IS NOT A TEST WHERE THERE IS A CORRECT ANSWER. THE CORRECT ANSWER FOR YOU MAY BE DIFFERENT FROM THE ANSWER THAT IS CORRECT FOR SOMEONE ELSE. THE CORRECT ANSWER IS THE ONE THAT'S TRUE FOR YOU.

I WILL READ A QUESTION, THEN YOU WILL ANSWER IT BY CIRCLING "YES" OR "NO." FOR EXAMPLE, FIND "H" ON YOUR ANSWER SHEET. QUESTION "H" IS "DO YOU LIKE TO DRAW?" IF YOU DO LIKE TO DRAW, CIRCLE THE WORD "YES" ON YOUR ANSWER SHEET FOR QUESTION "H". IF YOU DO NOT LIKE TO DRAW, CIRCLE THE WORD "NO." IF SOMETIMES YOU LIKE TO DRAW AND SOMETIMES YOU DO NOT, CIRCLE THE QUESTION MARK TO SHOW THAT THE ANSWER IS SOMETIMES YES AND SOMETIMES NO. DO NOT SPEND A LOT OF TIME THINKING ABOUT YOUR ANSWER. JUST MARK THE FIRST ANSWER THAT COMES TO MIND. BE SURE TO ANSWER EACH QUESTION.

FIND "I" ON YOUR ANSWER SHEET. "DO YOU READ VERY FAST?" MARK YES OR NO. IF YOU FEEL YOU NEITHER READ FAST OR SLOW, OR IF YOU ARE NOT SURE OF YOUR ANSWER, CIRCLE THE QUESTION MARK.

REMEMBER WE WANT TO ENCOURAGE YOU TO GIVE YOUR TRUE FEELINGS, BUT ANSWER QUICKLY WITH THE FIRST ANSWER THAT COMES TO MIND. BE SURE TO MARK AN ANSWER TO EACH QUESTION, EVEN IF YOUR ANSWER IS THE QUESTION MARK. IF YOU DO NOT UNDERSTAND A QUESTION, RAISE YOUR HAND. (You may clarify any question using language familiar to the students).

I WILL READ SEVERAL QUESTIONS AND YOU WILL CIRCLE THE FIRST ANSWER THAT YOU THINK OF. BE SURE TO ANSWER EVERY QUESTION QUICKLY. PLEASE DO NOT LOOK TO SEE HOW OTHERS HAVE ANSWERED THE QUESTIONS. IF YOU WANT ME TO REPEAT A QUESTION, RAISE YOUR HAND AND I WILL READ THE QUESTION AGAIN. ON YOUR ANSWER SHEET, FIND NUMBER ONE. QUESTION ONE IS (read the question, pause. No one should circulate among the students while the students are taking the inventory, except to answer questions.) HAS EVERYONE ANSWERED QUESTION ONE? QUESTION NUMBER TWO: (read the question, pause. Continue through question 30. Keep the students working quickly.) TURN YOUR ANSWER SHEETS OVER. (Have the answer sheets collected.)

Colorado Reading Attitude Inventory[1]

1. Do you like school?
2. Do you like to read?
3. Do you read at home?
4. Do you read books or magazines even when you don't have to?
5. Do you check out books from the library?
6. Do you read parts of the newspaper every day?
7. Do you like to get books as gifts?
8. Do you find most books that you read interesting?
9. Are most things you learn from books important?
10. Are you reading much better now than you did last year?
11. Do you read very slowly?
12. Do you have trouble remembering what you read?
13. Can you remember a story better if you read it yourself than if the story is read to you?
14. Do you often daydream while you are reading?
15. Are you pleased about how well you read?
16. Can you sound out new words in reading?
17. Do you like to read to your teacher?
18. Do you like to read to your parents?
19. Do you think that most books at school are hard to read?
20. Do you like to look at magazines?
21. Do you like to read magazines?
22. Do you like to read to yourself?
23. Do you like to read to others?
24. Are your parents satisfied with how well you read?

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[1] (c) Laboratory of Educational Research, University of Colorado, 1972

25. Do you like to read more than most kids your age?

26. Do you think you read well for your age?

27. Do your teachers care about how well you read?

28. Do you plan to finish high school?

APPENDIX C

(ol... Department of Education
(o ...ervice Education Services Unit

ANNUAL FINANCIAL REPORT - EDUCATIONAL ACHIEVEMENT ACT

DISTRICT OR BOCS NAME _____ DISTRICT or BOCS NUMBER [1 2 3 4] PROJECT NUMBER [5 6] PROGRAM NUMBER [8 9] TOTAL EAAC FUNDS APPROVED [10 11 12 13 14 15 16 17]

ENTERPRISE CLASSIFICATION					A. Total Annual Expenditures From EAAC Funds			B. Total Annual Expenditures From Other Fund Sources			C. Total Program Expenditures
Expenditure Accounts (1)					Salaries (2)	Contracted Services and Other Expenses (3)	Total (4)	Salaries (5)	Contracted Services and Other Expenses (6)	Total Other Sources (7)	Total All Sources
Sect. 11	Sect. 12	No. 13	No. 14		15 16 17 18 19 20 21 22	23 24 25 26 27 28 29 30 31	32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49	50 51 52 53 54 55 56 57 58	59 60 61 62 63 64 65 66 67	68 69 70 71 72 73 74 75
0	1	0	0	Administration							
0	2	1	0	Salaries For Instruction							
0	2	2	0	Textbooks							
0	2	2	1	School Library							
0	2	3	2	Audiovisual Materials							
0	2	4	0	Teaching Supplies							
0	2	5	0	Inservice Education							
0	3	0	0	Attendance Services							
0	4	0	0	Health Services							
0	5	0	0	Pupil Transportation							
0	6	0	0	Operation of Plant							
0	7	0	0	Maintenance of Plant							
0	8	0	0	Fixed Charges							
0	9	0	0	Food Services							
1	0	0	0	Student Body Activities							
1	1	0	0	Community Services							
1	2	1	0	Construction							
1	2	3	0	Instructional Equipment							
5	5	5	5	TOTAL							

D. Current Account Status

Total Cash Paid Out For Project Expenditures	
Cash On Hand	
Total Unliquidated Obligations	
Total Cash On Hand Not Obligated	

CERTIFICATION: I certify that all information herein is true, complete and correct to the best of my knowledge and belief.

_____ (Signature of Authorized Representative)

_____ (Date Reported)

E. Identification of Other Fund Sources

Local Funds		Title VII	
Title I ESEA		Title VIII	
Title II ESEA		NDEA	
Title III ESEA		Other	
Title IV			

CDE FORM 166
March, 1973

APPENDIX D

EXPENDITURES BY PROJECT AND COST PER PUPIL BY PROJECT

Project Number	No. of Pupils Contracted to be Served	State Expenditure	State Cost Per Pupil	Local and Federal Expenditure	Local and Federal Cost per Pupil	Total Expenditure	Total Cost per Pupil
1	6,050	307,459	50.82	1,031,731	170.53	1,339,190	221.35
2	559	14,506	25.95	-0-	-0-	14,506	25.95
3	566	57,959	102.40	19,737	34.87	77,696	137.27
4	560	49,151	87.77	-0-	-0-	49,151	87.77
5	358	55,706	155.60	1,850	5.17	57,556	160.77
6	308	63,889	207.43	6,174	20.05	70,063	227.48
7	43	5,561	129.33	9,673	224.95	15,234	354.28
8	300	66,148	220.49	-0-	-0-	66,148	220.49
9	796	19,109	24.01	856	1.08	19,965	25.08
10	615	47,103	76.59	26,686	43.39	73,789	119.98
11	750	41,599	55.47	71,090	94.79	112,689	150.25
12	100	11,917	119.17	40,357	403.57	52,274	522.74
13	270	46,809	173.37	-0-	-0-	46,809	173.37
14	453	53,675	118.45	43,700	96.47	97,375	214.96
15	205	16,749	81.70	46,371	226.20	63,120	307.90
16	120	19,108	159.23	-0-	-0-	19,108	159.23
17	580	16,594	28.61	111,600	192.41	128,194	221.02
18	325	42,754	131.55	3,435	10.57	46,189	142.12
19	136	28,370	208.60	4,900	36.03	33,270	244.63
20	208	12,756	61.33	6,300	30.29	19,056	91.62
21	33	6,465	195.91	2,632	79.76	9,097	275.67

APPENDIX E

COLORADO READING ATTITUDE INVENTORY ITEM RESPONSES

ITEM	PERCENT ANSWERING YES					
	GRADE 1-3		GRADE 4-6		GRADE 7-9	
	PRE	POST	PRE	POST	PRE	POST
1. Do you like school?	77	66	50	44	30	25
2. Do you like to read?	67	64	53	50	32	29
3. Do you read at Home?	58	56	48	46	37	39
4. Do you read books or magazines even when you don't have to?	48	49	55	55	56	61
5. Do you check out books from the library?	74	78	77	78	60	59
6. Do you read parts of the newspaper every day?	28	28	25	32	42	45
7. Do you like to get books as gifts?	76	73	55	48	25	20
8. Do you find most books that you read interesting?	64	60	63	59	51	48
9. Are most things you learn from books important?	68	68	61	58	44	39
10. Are you reading much better now than you did last year?	81	80	73	76	57	72
11. Do you read very slowly?	50	39	37	30	32	25
12. Do you have trouble remembering what you read?	52	47	48	40	47	35
13. Can you remember a story better if you read it yourself than if the story is read to you?	58	59	53	52	50	48
14. Do you often daydream while you are reading?	38	39	48	46	62	60
15. Are you pleased about how well you read?	71	69	46	45	30	33
16. Can you sound out new words in reading?	67	72	53	58	43	46
17. Do you like to read to your teacher?	69	68	35	30	12	10
18. Do you like to read to your parents?	77	74	49	43	16	14
19. Do you think that most books at school are hard to read?	37	28	23	16	17	12
20. Do you like to look at magazines?	70	67	77	78	86	83
21. Do you like to read magazines?	42	40	39	39	42	46
22. Do you like to read to others?	71	69	69	69	66	62
23. Do you like to read to others?	54	52	30	29	14	14
24. Are your parents satisfied with how well you read?	77	71	44	41	24	27
25. Do you like to read more than most kids your age?	57	52	32	26	15	11
26. Do you think you read well for your age?	68	67	43	41	29	34
27. Do your teachers care about how well you read?	78	78	77	76	57	57
28. Do you plan to finish high school?	76	74	81	78	89	83
TOTAL	2,131	2,193	1,963	2,221	750	919

APPENDIX F

PRE- AND POST-TEST MEANS ON ATTITUDE FACTORS BY PROGRAM
GRADES 1-3

PROGRAM NUMBER	ATTITUDE FACTOR 1		2		3		4		5		6	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	-	-	-	-	-	-	-	-	-	-	-	-
2	1.24	1.46	1.43	1.49	1.42	1.25	1.48	1.53	1.75	1.83	1.90	1.96
3	1.31	1.39	1.47	1.35	1.36	1.40	1.47	1.39	1.80	1.84	1.90	1.97
4	1.35	1.47	1.46	1.46	1.22	1.22	1.42	1.50	1.80	1.80	1.90	2.04
5	-	-	-	-	-	-	-	-	-	-	-	-
6	1.30	1.63	1.44	1.62	1.31	1.29	1.47	1.60	1.82	1.88	1.91	1.93
7	1.46	1.67	1.63	1.71	1.34	1.43	1.61	1.37	1.83	1.94	2.12	2.18
8	1.37	1.62	1.60	1.65	1.27	1.28	1.69	1.66	1.84	1.87	1.99	1.90
9	1.62	1.75	1.75	1.63	1.34	1.29	1.69	1.62	1.81	1.86	1.92	1.94
10	1.32	1.53	1.59	1.65	1.48	1.35	1.55	1.57	1.85	1.79	2.03	1.99
11	1.41	1.52	1.53	1.49	1.23	1.24	1.62	1.57	1.77	1.88	1.96	1.86
12	1.70	1.63	1.59	1.54	1.29	1.23	1.75	1.74	1.86	1.92	2.05	1.94
13	1.70	1.57	1.80	1.83	1.10	1.35	1.77	1.83	1.78	1.87	1.86	1.84
14	1.35	1.45	1.40	1.39	1.38	1.26	1.37	1.50	1.77	1.75	1.95	1.79
15	1.30	1.39	1.48	1.31	1.27	1.44	1.38	1.54	1.81	1.79	1.78	1.94

PRE- AND POST-TEST MEANS ON ATTITUDE FACTORS BY PROGRAM
GRADES 4-6

PROGRAM NUMBER	ATTITUDE FACTOR 1		2		3		4		5		6	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	1.95	1.88	1.79	1.63	1.39	1.27	2.14	2.00	1.90	1.92	1.96	1.76
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	1.45	1.45	1.50	1.30	1.42	1.18	1.69	1.85	1.88	1.92	1.95	1.79
5	-	-	-	-	-	-	-	-	-	-	-	-
6	1.63	1.84	1.58	1.70	1.31	1.37	1.94	2.03	1.93	1.96	1.82	1.73
7	1.83	1.88	1.86	1.85	1.50	1.21	2.12	2.09	2.00	1.96	1.87	1.81
8	1.68	1.87	1.76	1.85	1.41	1.23	1.86	2.13	1.90	1.98	1.87	1.89
9	1.84	1.81	1.60	1.63	1.43	1.25	2.05	2.14	1.93	1.97	1.82	1.82
10	1.66	1.83	1.53	1.53	1.39	1.22	1.92	2.03	1.92	1.99	1.93	1.87
11	1.98	2.00	1.93	1.72	1.49	1.29	2.25	2.24	1.98	1.98	1.85	1.75
12	1.86	1.83	1.72	1.70	1.45	1.27	2.22	2.21	2.08	2.05	1.80	1.86
13	1.69	1.77	1.60	1.69	1.27	1.22	2.22	2.31	1.95	1.97	1.69	1.73
14	1.77	1.74	1.73	1.76	1.47	1.27	2.02	2.08	1.97	1.97	1.88	1.69
15	1.58	1.77	1.57	1.73	1.26	1.32	1.87	2.00	1.91	1.90	1.82	1.78

PRE- AND POST-TEST MEANS ON ATTITUDE FACTORS BY PROGRAM
GRADES 7-9

PROGRAM NUMBER	ATTITUDE FACTOR 1		2		3		4		5		6	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	2.13	2.18	2.17	2.05	1.67	1.33	2.51	2.49	2.02	2.04	1.66	1.67
6	1.92	2.17	1.85	1.98	1.59	1.46	2.38	2.61	1.94	2.00	1.64	1.58
7	1.62	1.78	1.88	1.84	1.57	1.12	2.50	2.57	2.02	1.97	1.68	1.68
8	2.00	2.09	2.21	2.02	1.55	1.23	2.51	2.54	2.04	1.95	1.72	1.65
9	2.32	2.08	2.20	1.85	1.72	1.28	2.48	2.46	1.97	2.02	1.97	1.65
10	-	-	-	-	-	-	-	-	-	-	-	-
11	2.09	2.13	1.93	1.95	1.62	1.41	2.58	2.52	2.01	2.02	1.63	1.59
12	-	-	-	-	-	-	-	-	-	-	-	-
13	1.84	1.76	2.00	1.91	1.47	1.31	2.69	2.59	1.95	1.99	1.59	1.48
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-